**Before the**

# FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, DC 20554

## Response and Motion to Dismiss RM-11831

Mr. Chairman and FCC Officials:

My name is Scott Dakers. I serve as the RACES Radio Room Manager for the Washington State Emergency Management Division (WA EMD) of the Washington Military Department (Washington National Guard). I am directly responsible for amateur radio communications coming into the State Emergency Operations Center (SEOC) from sovereign tribal, county and jurisdictional EOCs throughout Washington. I am WA EMD's Entity Station Point of Contact for DHS NCC SHARES and for their network of SHARES Winlink Radio Message Server (RMS) stations across the state operating on NTIA frequencies. I am also an Air Force MARS station operator and serve as the MARS Station Manager for WA EMD at Camp Murray, Washington.

In my work, I oversee teams of amateur radio operators serving WA EMD in the amateur radio (RACES, ARRL ARES) and SHARES services, both on site at Camp Murray and at locations around the state. I interface with emergency radio communicators and leadership serving in counties and jurisdictions throughout our state and FEMA Region X. When the SEOC is activated and auxiliary radio communications are required, I serve as a COML. I hold an Amateur Extra class license (W7SGD) and have been an amateur radio operator and radio enthusiast for decades.

After studying the proposed changes recommended in RM-11831, and have concluded that if implemented, it would critically degrade amateur radio's emergency communications capabilities to the point of virtual ineffectiveness as a public service. Whereas the alleged "risks" described by supporters of this measure range from hypothetical to possible, the actual impact it would have on emergency communications in Washington State would be crippling.

The Commission has long recognized and valued the role of the amateur radio service. Part 97 clearly describes amateur radio as an emergency communications asset with the ability to provide additional communications resources to mitigate "impending or actual conditions which jeopardize public safety,[1]" facilitate "messages directly concerning the immediate safety of life of individuals, the immediate protection of property[2]" [and the ability to help] "alleviate human suffering and need[3]." The changes requested in RM-11831 would run counter to these core principles as well as placing a severe damper onto further development of the radio art. Rather than "encouraging and improving the amateur service through rules which "provide for the

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[1] 47 CFR § 97.1.407(d)(1)

[2] 47 CFR § 97.1.407(d)(2)

[3] 47 CFR § 97.1.407(d)(2)

advancing skills in communication and the technical phases of the art,[4]" RM-11831 would both deprive amateur emergency communicators of the vehicle with which to learn these skills and deprive the amateur radio community of the most potent means of passing errorless message traffic by the fastest means possible for the general welfare of the community they serve.

I strongly urge you ***not*** to enact the changes recommended in RM-11831 ***and ask that it be entirely dismissed.***

**Washington State and RACES.** Washington State, like most other states, relies on the amateur radio service to provide additional contingency communications resources in the event a catastrophic outage of telecommunications or when an event so overloads the existing communications infrastructure that additional resources are required. This has been codified into the Washington State RACES Plan, which is published and available to the public on WA EMD's website. Virtually every county in Washington State has a RACES plan written into their required Comprehensive Emergency Management Plan (CEMP), which are published on their respective emergency management websites.

Virtually all government agencies draw on additional resources from the private sector to mitigate disasters when a given event outstrips the resources of that agency. In Washington State, RACES amateur radio fills this role in support of ESF-2 Communications. It is no exaggeration to say that the State of Washington not only recognizes the importance and resiliency of amateur radio as envisioned in Part 97; it is written into our state plan and we rely on it.

**Washington's Need for Amateur Emergency Communications**. The Pacific Northwest is one of the most tectonically active areas of our country. From 1872 to 2001, Washington experienced twenty earthquakes with a magnitude of 5.0 or greater for an average of one significant earthquake every 6.35 years during that timeframe. The Cascade Mountain Range, which runs to the east of our largest cities is home to the second and third-most dangerous volcanoes in the United States. Mount Rainier in particular poses a considerable threat to our most highly populated areas in the state.

Our greatest single concern, however is the 700-mile long Cascadia Subduction Fault, which lies on the floor of the Pacific Ocean off the coasts of Washington, Oregon and northern California. USGS and FEMA warns that it will produce an earthquake exceeding a 9.0 in magnitude, create a massive tsunami and that we should anticipate a massive loss of critical infrastructure throughout all of Western Washington ranging from a minimum of six months and up to two years. Casualties could range between ten thousand to twenty-five thousand killed and injured, depending entirely on the time and season the earthquake hits. Damage estimates are expected to far eclipse Hurricanes Katrina and Maria combined.

In the face of these realities, Washington State and the amateur radio community have been very proactive in preparing a communications response for these eventualities. WA EMD coordinates statewide quarterly communications exercises practicing the passing of vital message traffic. Since Hurricane Katrina, emergency communications and forms have been standardized and all agencies use ICS-213RR (Recourse Requests) and ISNAP (Incident Snapshot) Reports. ***The***

[4] 47 CFR § 97.1.(d)

***single most effective and robust means of passing these critical data-laden messages in the absence of the Internet is Winlink via PACTOR***.

In our most recent communications exercise dated 30 March 2019, nearly 400 ICS-213RR Resource Request messages and confirmation messages were passed between the SEOC's ARES/RACES station and EOCs from all over the state via Winlink in less than two hours. The messages came through without a single error because of the Auto Repeat Query (ARQ) protocols and data compression. Under the conditions a Cascadia Subduction earthquake, the robustness of the ARQ protocols (particularly, PACTOR) will move the greatest volume of traffic in the most reliable way when it will be most needed. Simply put: we absolutely need these capabilities.

While Washington State boasts the largest network of hybrid SHARES Winlink RMS stations in the United States, these resources will simply be insufficient to handle the sheer volume of message traffic. In addition, SHARES communications are limited to government agencies. Amateur radio is needed to fill the gaps in shelters, fire stations and for passing public health and welfare message traffic. Whereas concerned family members most likely do not have an amateur radio, virtually everyone has email. Amateur radio operators will be able to fill a great need and provide considerable relief to worried families.

Through Winlink/ PACTOR, WA EMD is capable of receiving all critical message traffic from both amateur and SHARES communications at a single location on a single computer using a single platform from anywhere in the state. Since all of our SHARES operators are trained amateur radio operators, this will allow emergency responders the greatest flexibility, situational awareness and ability to respond in the least amount of time possible. Washington State utilizes and practices ICS messaging and operational methodologies. This same methodology has been embraced and adopted by the ARRL. Winlink via PACTOR affords both the amateur and SHARES communities to serve in a united manner to move critical emergency message traffic flawlessly. RM-11831 would take away amateur radio's ability to be a part of this response whatsoever. Further, as amateur radio serves as a training ground for the radio art, RM-11831 would deprive us of trained operators in the DHS NCC SHARES service as well.

Can SHARES meet this communication need alone? Absolutely not. SHARES will allow government agencies to communicate with each other. Amateur radio will be needed to pass ICS message traffic (digital paperless forms) from shelters, hospitals and other non-governmental response locations using PACTOR, is the most robust and reliable modem for this purpose.

As envisioned in Part 97, amateur radio is the training ground for this type of emergency response. We need our hams to have the tools to serve their community. Amateur radio operators so equipped and trained make the best SHARES operators. For the amateur community to have the training and tools to perform this community service, they need to be allowed to have and use it. RM-11831 would effectively prohibit this.

Late last year, I received a phone call from one of the Winlink Development Team, requesting that I confirm the operational status of amateur RMS PACTOR stations in our state. It turns out that the propagation between Washington State and California was good and that our amateur stations were at that moment handling message traffic via Winlink/ PACTOR from shelters operating in the wake of the California wildfires. Lists of supplies needed, beds available and

other data was sent without error to an agency in California via Winlink PACTOR through Washington State RMS stations. I checked on all operational RMS stations and found all of them operating on frequencies within the designated band plan for data in the amateur spectrum. Washington State amateur radio operators were assisting Californians during the worst fire in their history. RM-11831 would have made that impossible. *Something that should also be noted: someone on the Winlink development team was able to read a message sent from the shelter to a California agency. It was not encrypted. It was forwarded to me. I saw it. It was not private and did not contain personally identifiable information*.

**Misinformation Regarding "Encryption."** One of the key allegations in support of RM-11831 is the allegation that ARQ and LZW "effectively constitutes encryption," thereby allowing nefarious international agents to jeopardize our national security from outside our country. Because the entire message was not readily available "in the clear," amateurs would not be able to discern, intercept and report the action. This argument demonstrates a either a stunning lack of understanding of encryption or obfuscation dependent on the reader's lack of knowledge.

Encryption is the act of *purposefully* obscuring a message's meaning *prior* to its transmission and insuring that the meaning cannot be read without a specific key. Again, encryption is something done to a message *prior* to its transmission. It is a separate step. There are no amateur digital modes that have the ability to encrypt a message and then transmit the encrypted message. Winlink contain no encryption capability. PACTOR, Winmor, CLOVER, ARDOP, Vara and other like modems are not encrypted or encryption devices. The compression used by Winlink on the amateur frequencies is open and used by third party developers. ARQ with open compression is a means of transmission, it is NOT encryption.

Several very important facts that bring further clarity:

a) Federal and state government agencies using amateur radio do not permit the transmission of sensitive material via Winlink and PACTOR because it is not encrypted and it is not considered secure.

b) Transmissions sent via Winlink through Department of Homeland Security NCC/SHARES are not considered secure. When encryption of a message is warranted, end users use DoD's ***T**rusted **E**nd **N**ode **S**ecurity* Encryption Wizard (TENS) to (1) first encrypt message to be sent prior to entering the message and then (2) transmitting the message. DHS would not describe any message sent via Winlink over a PACTOR modem as encrypted—unless it is first encrypted.

c) WA EMD considers Winlink and PACTOR as an unsafe means to pass personally identifiable information (PII) under any circumstances and that transmissions via Winlink/ PACTOR are and must be considered susceptible to interception. WA EMD's amateur RACES radio operators and SHARES gateway sysops are all required to take DoD classes on the handling of PII for this reason and are forbidden to send any messaging containing PII via Winlink/ PACTOR on either FCC Part 97 spectrum or the SHARES NTIA frequencies.

d) DoD's MARS operators were not allowed to use Winlink for message transmission, as it was not considered secure from interception.

e) When WA EMD describes Winlink as a secure means of passing information, we are saying that the message has a very high likelihood that it will be received without any errors in transmission. We are not implying that the message is encrypted and is therefore safe to pass sensitive material.

**"RM-11831 importantly also assures national security by providing transparency and self-monitoring by the public of all amateur radio transmissions in the HF spectrum that routinely cross international borders."[5]**

The implication is that the use of amateur digital modes makes it possible for nefarious foreign agents outside of the United States to undermine our security national security via amateur radio using ARQ and data compression. There are multiple problems with this argument.

- It is understood that foreign agents acting against the interests of our country require mobility and stealth to avoid discovery and apprehension. Anyone remotely familiar with HF amateur radio clearly recognizes that high mobility and stealth are not terms that could possibly be ascribed to HF radio. If it is mobile, it is not stealthy. If it is stealthy it is not mobile.

- One would actually find stealth, mobility, a small equipment footprint and encryption capabilities on virtually any laptop connected to the Internet intermittently using a VPN possibly running on a 5G network. If one could send an encrypted message more securely and rapidly with greater stealth and mobility with just a computer, why would one add an additional PACTOR modem, HF radio, antenna, antenna tuner and ground system and thereby reduce speed and stealth? I consulted highly-respected military intelligence officers regarding this point and all agreed: the point made here has no foundation and they described the argument as "laughable."

- When one considers that a message is encrypted prior to transmission, it is not going to be readable by any amateur radio operator under any circumstance. Encryption can be placed into clear text to hide its meaning and no one would know. Radio operators did not know the plain text message "Climb Mount Niitaka" was the order for Japanese naval forces go ahead with the attack on Pearl Harbor in 1941. The same message could have been sent today on SSB and the message's true meaning and intent would still have been obscured. Not all Morse code transmissions are in English, and an American amateur would not be able to differentiate a CW transmission encrypted by an Enigma machine from another transmission being sent from Kyrgyzstan. Because encryption happens before a message is sent, it would be impossible for any amateur to determine whether any message crossing our border was a threat to our national security, no matter the medium; SSB, CW or digital, if such a message was even being sent.

- Amateur radio operators are not equipped, trained or tasked with seeking out foreign agents on the amateur bands. They are more focused on self-policing fellow amateurs regarding spurious transmissions, and even then, the purpose is to correct the individual making an unknown error and not to prevent international terrorism. Counterespionage is the work of NSA, CIA DIA and others. Frankly, I am embarrassed to have to address

[5] Theodore Rappaport in his letter to the Commission in support of RM-11831, dated 2 April, 2019

something like this in the amateur community. For all the world, it sounds like a made-for-TV conspiracy theory. I apologize to the Commission for even having to address this.

**Summary and Concluding Thoughts**. One of the greatest hindrances to the effectual reduction in human suffering during Hurricane Katrina was that there existed no common response architecture under which all emergency responders moved and adhered. What emerged was the National Incident Management System (NIMS). Emergency responders from all agencies and all non-governmental relief agencies have since coalesced around NIMS. Non-governmental agencies like the American Red Cross and RACES amateur radio use the same language, the same message forms and the same procedures contained in NIMS that every other emergency management agency must adhere to by law. The purpose: to speed relief efforts and minimize human suffering.

The changes required by law in NIMS means amateur radio operators are now passing message *documents*. The most accurate, most robust, most proven means of doing this in the absence of normal communications channels is by Winlink via PACTOR. The Department of Homeland Security NCC/SHARES recognizes this and Winlink/PACTOR is the only means they use to send documents via radio. WA EMD radio communications has determined that Winlink message traffic via PACTOR is the best means to pass vital message documents required for disaster relief and has been building the infrastructure to do just that for quite some time. SHARES is a service. Amateur radio is a service. In the face of a cataclysmic event, WA EMD will require the services of both.

Part 97.407 allows for amateur radio to send "message[s] concerning impending or actual ***conditions*** jeopardizing the public safety, or affecting the national defense or security during periods of local, regional, or national civil emergencies."[6] Under federal law, these are *documents* communicated on what are now called ISNAP reports. "Messages directly concerning the immediate safety of life of individuals, the immediate protection of property, maintenance of law and order, alleviation of human suffering and need…"[7] are now recorded on *documents* called ICS-213 forms. Lists of needed supplies, specific replacement parts, the need for air support to implement an emergency evacuation all happen as a result of messages transmitted on ICS-213 *documents*. Emergency radio communications volunteers on both government (SHARES) and amateur radio frequencies practice passing message traffic content digitally. This is what is required by emergency management agencies. To remove ARQ and LZW would introduce errors, reduce message efficiency, add even greater message congestion and worse, introduce a far greater chance of message failure. *This is completely unacceptable*.

In my discussions with radio operators serving in Puerto Rico in the aftermath of Hurricane Maria, well over 90% of all message traffic was ICS documents transmitted by HF radio using Winlink via PACTOR. Less than 10% of communication was by voice. This is how emergency communications works today. In Washington State, we expect the same to be true when we eventually face our Cascadia Seismic Event, which has all the potentiality to be far worse by orders of magnitude than anything the United State has yet seen. Both

[6] 47 CFR § 97.403(d)(1)
[7] 47 CFR § 97.403(d)(2)

SHARES and amateur radio emergency communications have effectively implemented these federally-mandated changes, which require the digital transmission of message document traffic.

RM-11831 would effectively end RACES as a partner and resource. Under RM-11831, amateurs will not have the ability to use the tools necessary to move the document traffic. As a result, Washington State would lose well over 85% of our emergency communications capabilities in the event of a catastrophic telecommunications/ Internet failure because of this measure. This would most definitely result in a completely unnecessary and totally avoidable loss of life and needless human suffering. *This is absolutely unacceptable*.

I ask that the Commission end the back-and-forth over this issue. I find myself having to spend valuable time trying to not lose the lifesaving capabilities we currently have rather than focusing all of my energies on increasing our state's communications efficiency and effectiveness. If RM-11831 is enacted, our state's team of trained emergency communicators would go from hundreds to a few dozen. *This is completely unacceptable*.

When Washington State experiences our 9.0 earthquake, we are going to need all of the communications resources available and we absolutely will need all of our highly-dedicated, highly-talented amateur radio community. I ask that you allow our amateur emergency communicators to obtain and use PACTOR 4 speeds. Allowing the amateur community to have PACTOR 4 means that it will be in the hands of the people who will need it at the time it is most needed.

The Commission will find that the submission entitled ***Response Efforts Undertaken During the 2017 Hurricane Season*** from the Department of Homeland Security Director John O'Connor (PS Docket No. 17-344) has great bearing on this subject and sheds additional light on this subject.

https://ecfsapi.fcc.gov/file/102221867611691/DHS%20NCC%20Reply%20Comments%20FCC%20PS%20Docket%2017-344%202017%20Hurricane%20Season.pdf

I thank you in advance for your kind and careful consideration to this matter and am grateful for your continued support of amateur emergency radio communications. I urge you to continue to support amateur radio emergency communications, as our hams are making a difference in the safety and security in the communities they serve.

Respectfully submitted,

Scott G. Dakers